Part 2 – Monthly Analysis
Linear Correlation
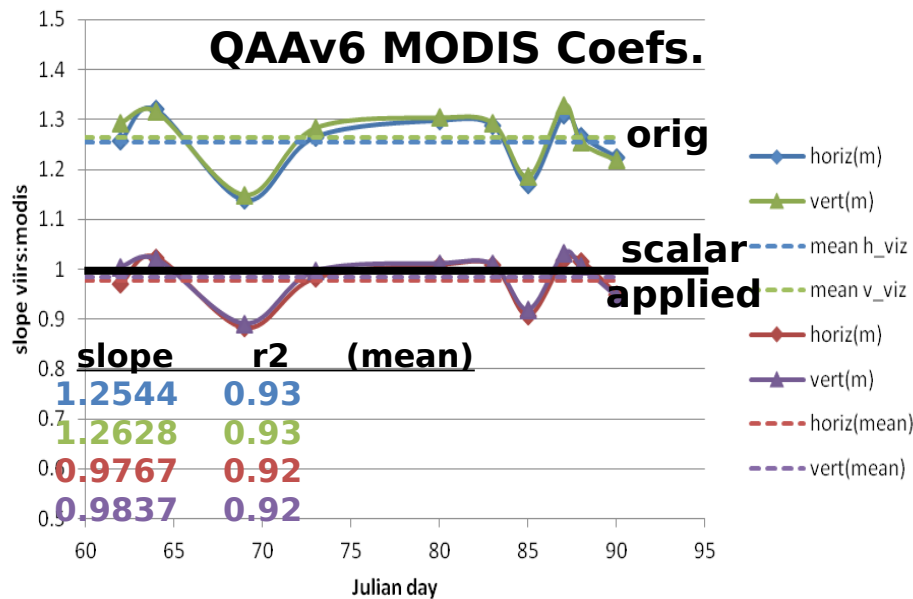# Does slope/scalar vary?
Vicarious Calibration?

MODIS vs. VIIRS Diver Visibilities (Horizontal,Vertical)

QAAv6 w/ MODIS Coefs & LMI

Persian Gulf December 2012
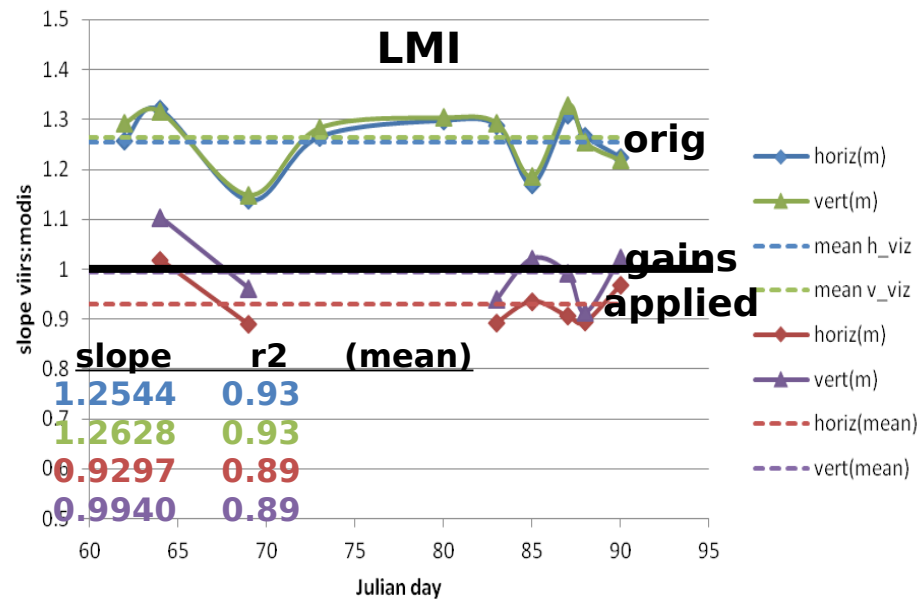# Korean Peninsula March 2013

Korea March 2013 visibility statistics

QAAv6 MODIS Coefs.

orig

scalar applied

slope	r2	(mean)
1.2544	0.93	
1.2628	0.93	
0.9767	0.92	
0.9837	0.92	

horiz(m)
vert(m)
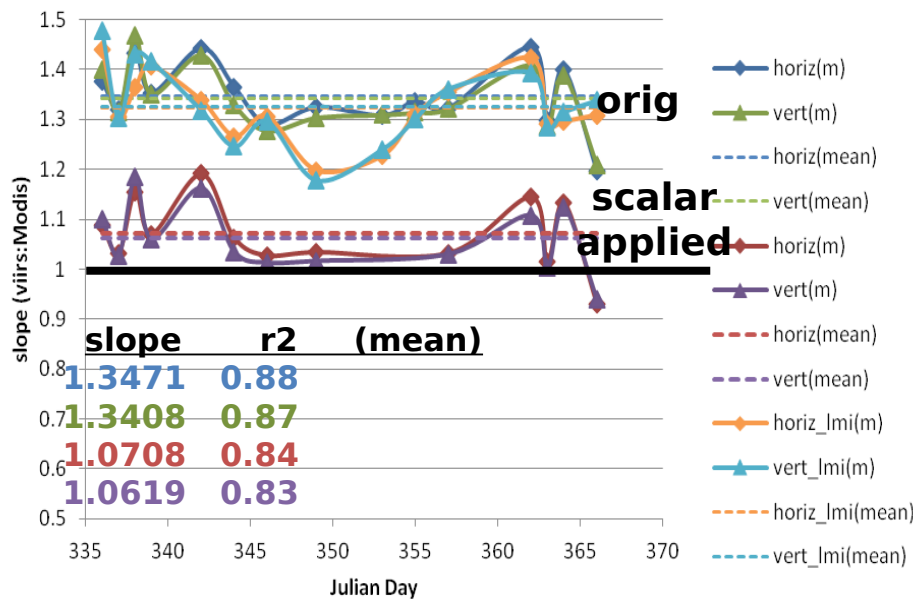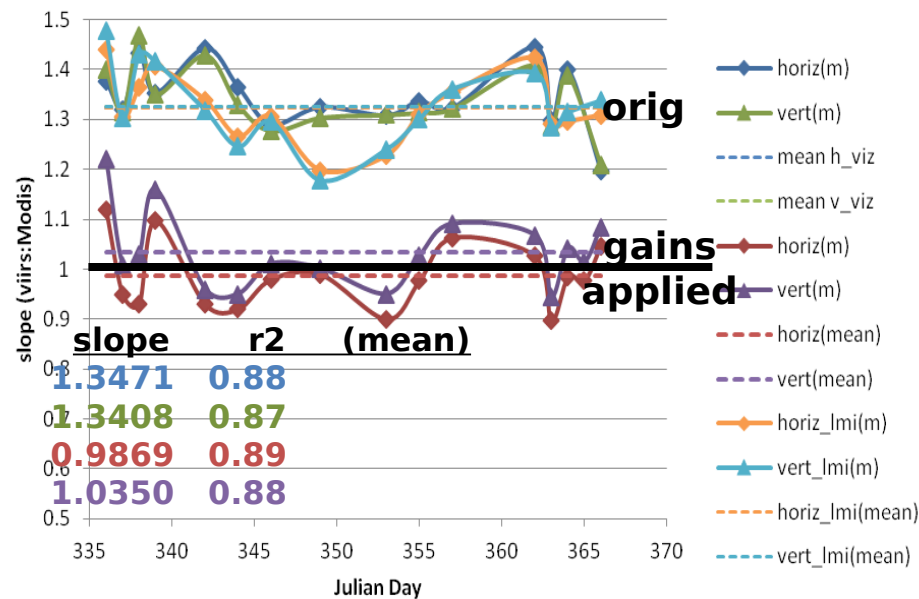mean h_viz
mean v_viz
horiz(m)
vert(m)
horiz(mean)
vert(mean)

Julian day

Korea March 2013 visibility statistics

LMI

orig

gains applied

slope	r2	(mean)
1.2544	0.93	
1.2628	0.93	
0.9297	0.89	
0.9940	0.89	

horiz(m)
vert(m)
mean h_viz
mean v_viz
horiz(m)
vert(m)
horiz(mean)
vert(mean)

Julian day

Arabian Gulf December 2012 visibility statistics

orig

scalar applied

slope	r2	(mean)
1.3471	0.88	
1.3408	0.87	
1.0708	0.84	
1.0619	0.83	

horiz(m)
vert(m)
horiz(mean)
vert(mean)
horiz(m)
vert(m)
horiz(mean)
vert(mean)
horiz_lmi(m)
vert_lmi(m)
horiz_lmi(mean)
vert_lmi(mean)

Julian Day

Arabian Gulf December 2012 visibility statistics

orig

gains applied

slope	r2	(mean)
1.3471	0.88	
1.3408	0.87	
0.9869	0.89	
1.0350	0.88	

horiz(m)
vert(m)
mean h_viz
mean v_viz
horiz(m)
vert(m)
horiz(mean)
vert(mean)
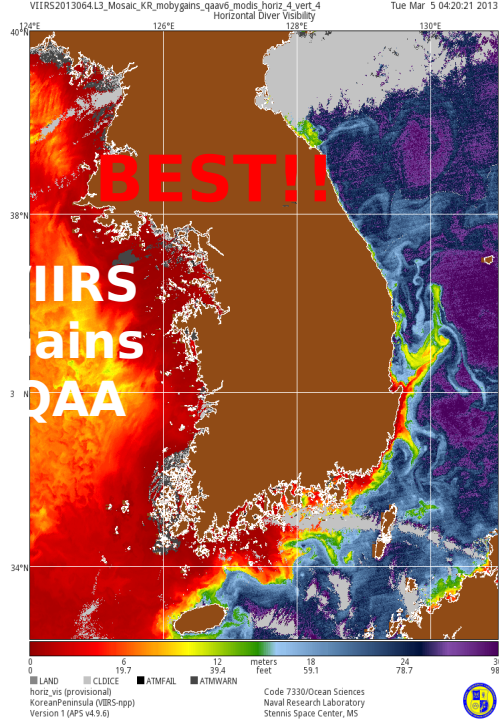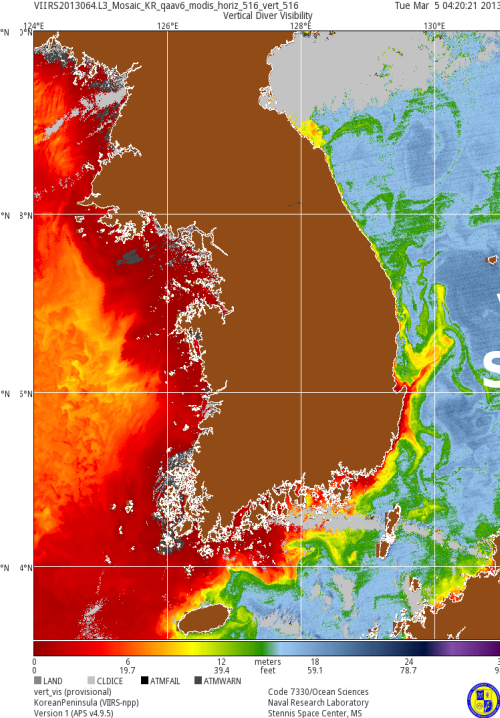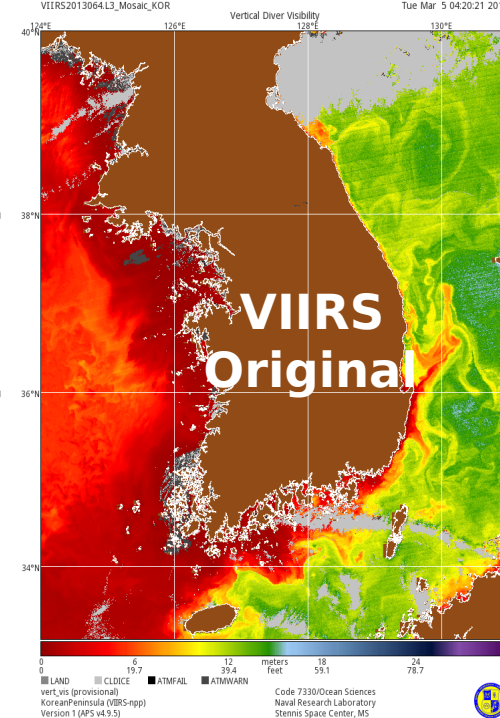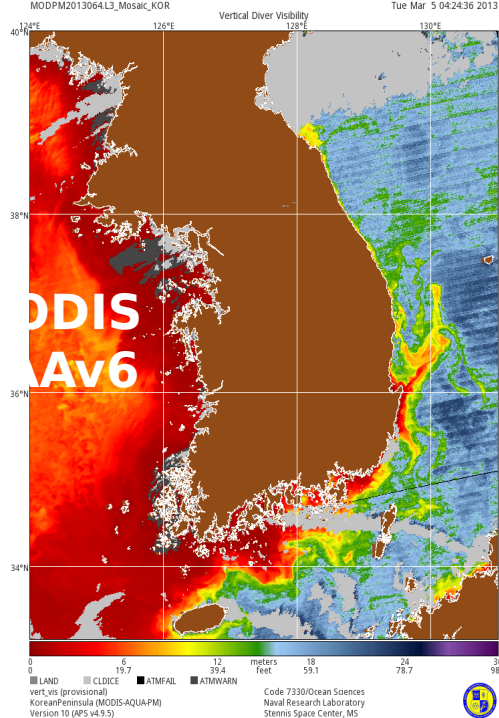horiz_lmi(m)
vert_lmi(m)
horiz_lmi(mean)
vert_lmi(mean)

Julian Day
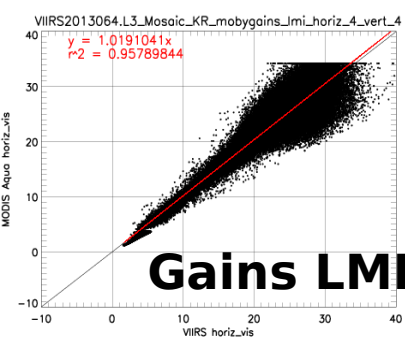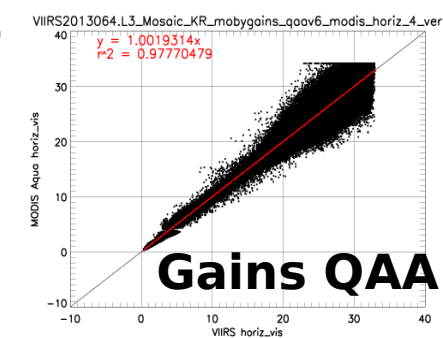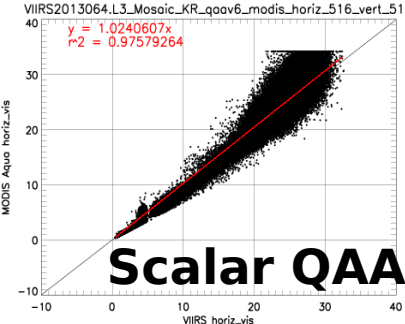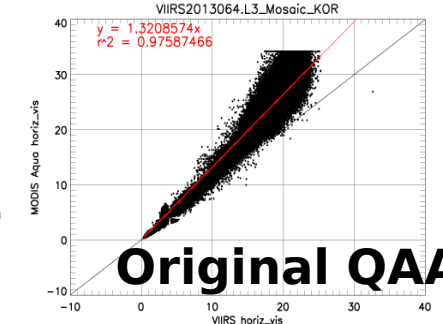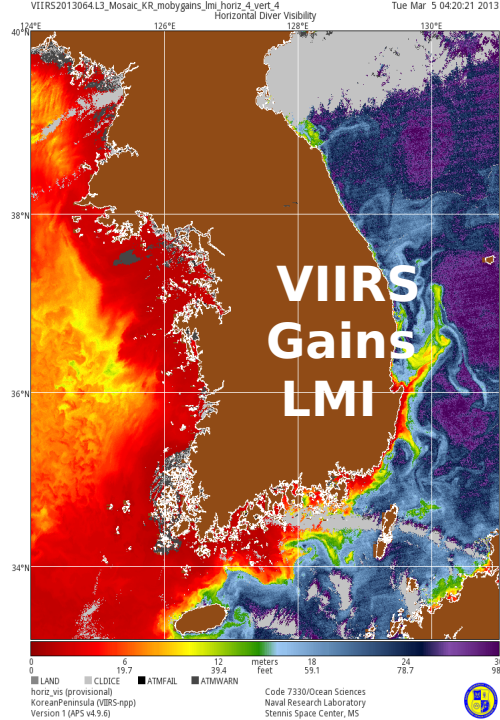
Korean Peninsula

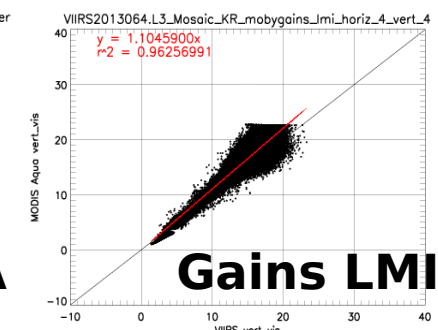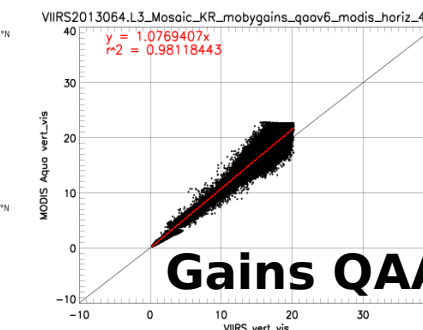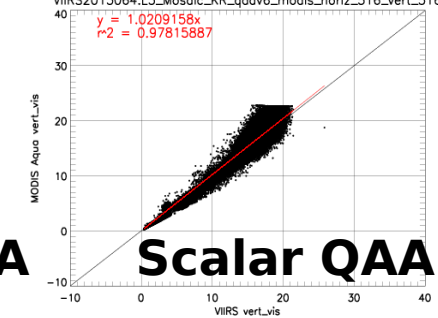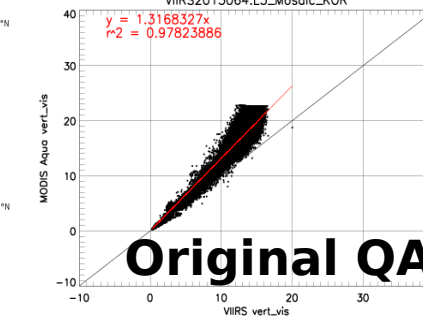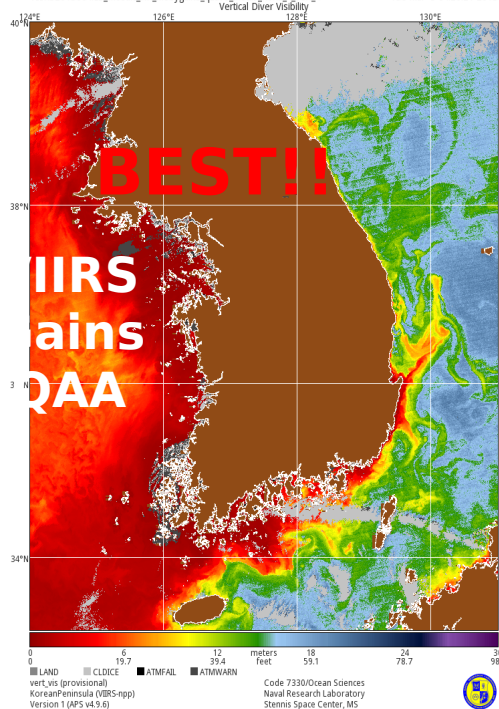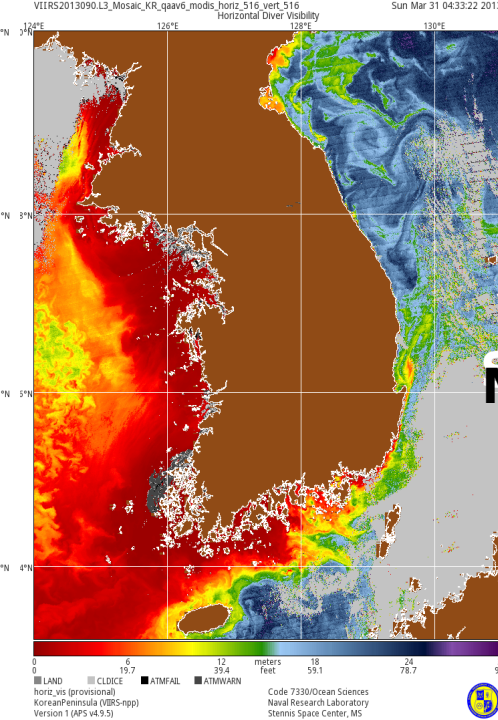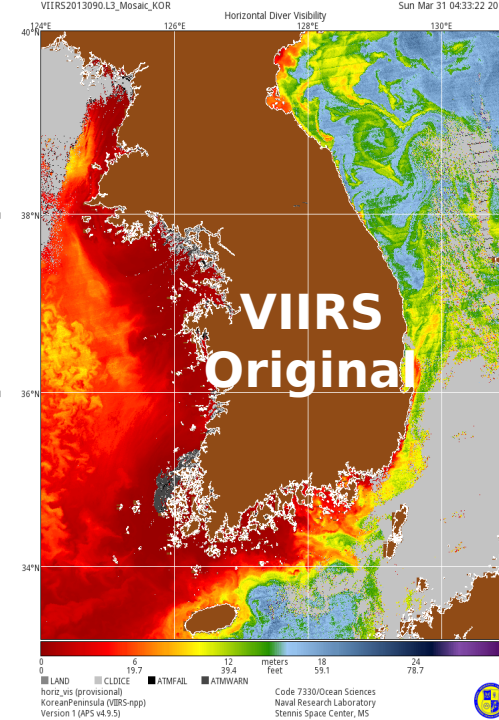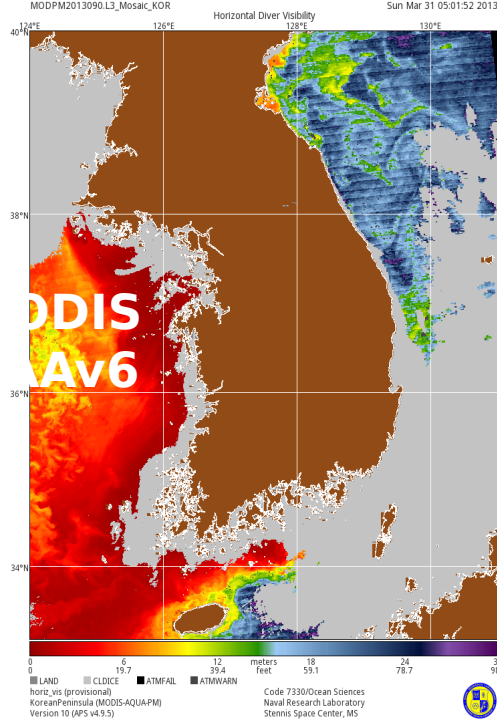Horizontal Visibility

March 5, 2013
JDAY 064

AOPS v4.8
Evaluation

Korean Peninsula

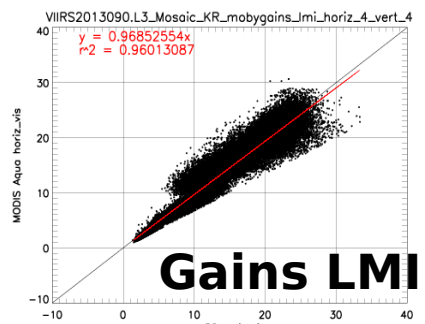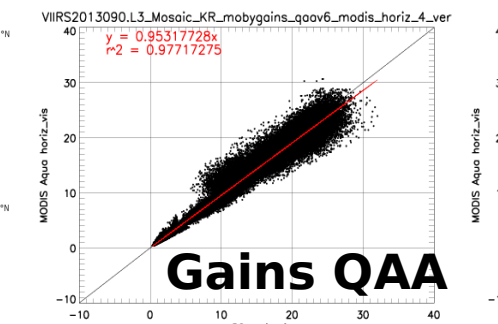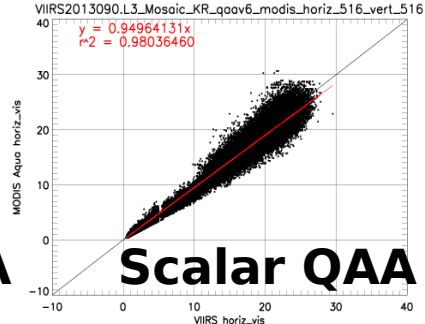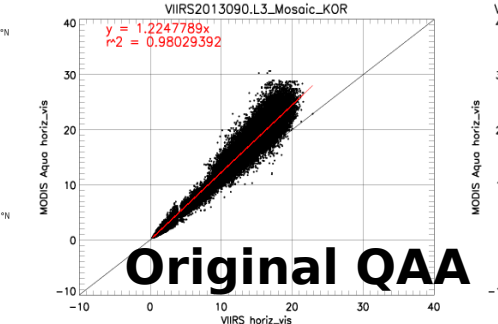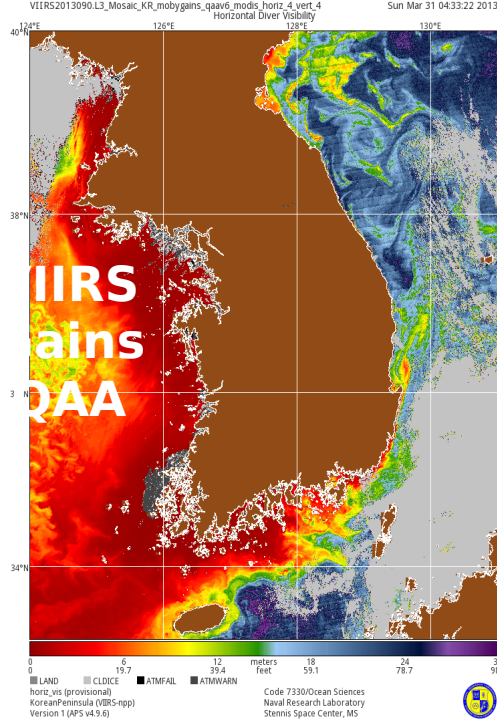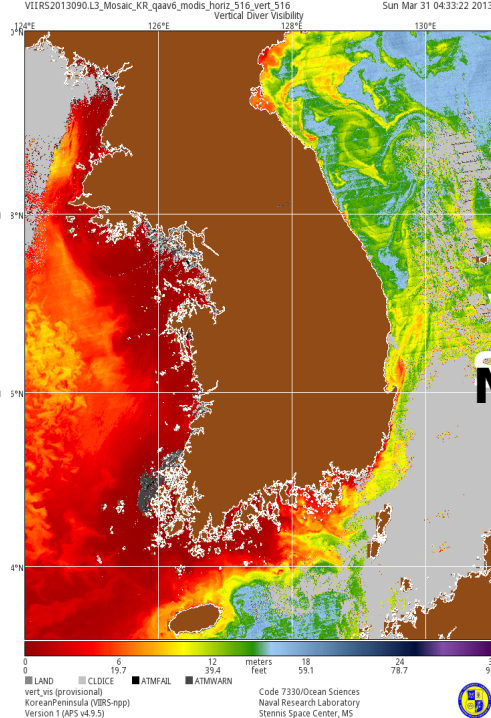Vertical Visibility

March 5, 2013 JDAY 064

AOPS v4.8 Evaluation

MODIS QAAv6

VIIRS Original

BEST!!

VIIRS Gains QAA

VIIRS Gains LMI

Original QAA

$y = 1.3168327x$
$r^2 = 0.97823886$

Scalar QAA

$y = 1.0209158x$
$r^2 = 0.97815887$

Gains QAA

$y = 1.0769407x$
$r^2 = 0.98118443$

Gains LMI

$y = 1.1045900x$
$r^2 = 0.96256991$
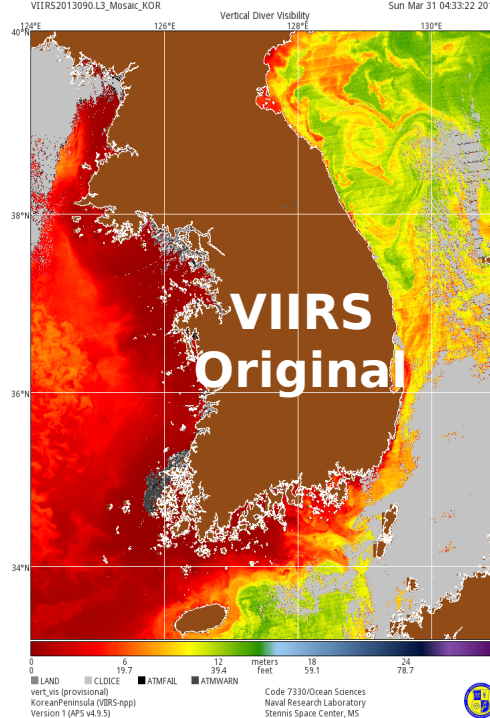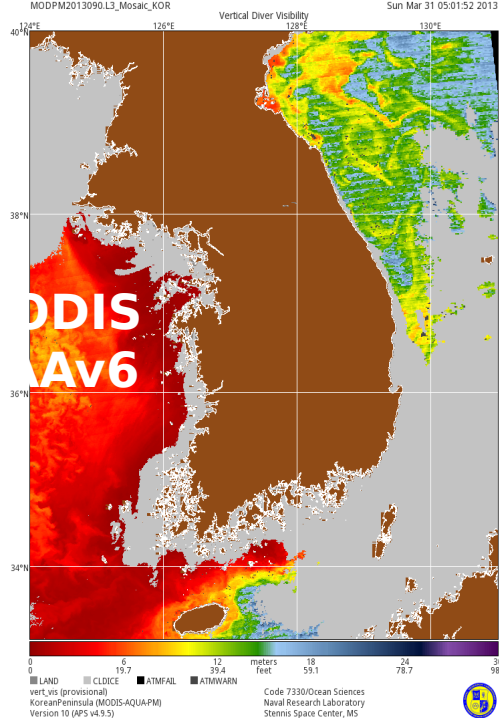
Korean Peninsula

Horizontal Visibility

March 31, 2013 JDAY 090

AOPS v4.8 Evaluation

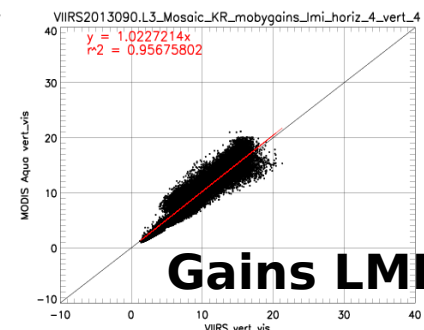MODIS QAAv6
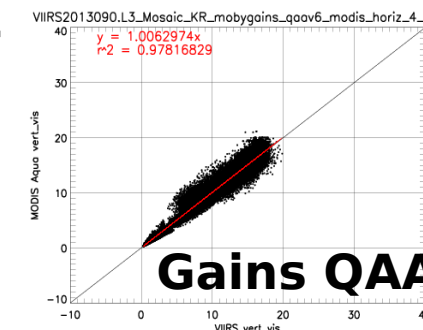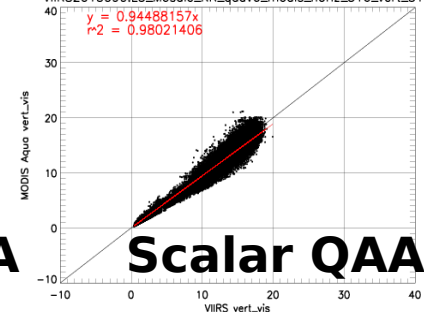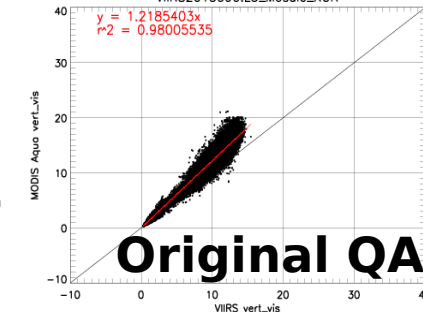
VIIRS Original

VIIRS Gains QAA

BEST!!

VIIRS Gains LMI

$y = 1.2247789x$
$r^2 = 0.98029392$

Original QAA

$y = 0.94964131x$
$r^2 = 0.98036460$

Scalar QAA

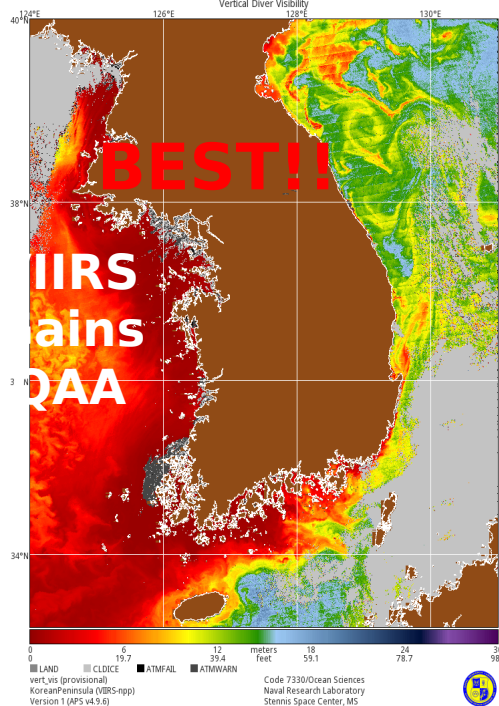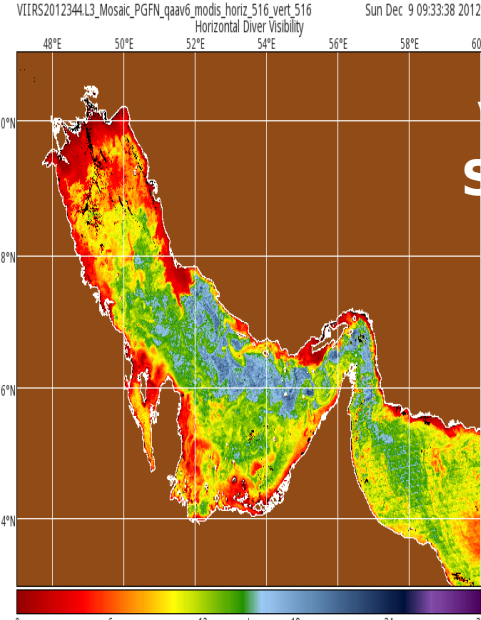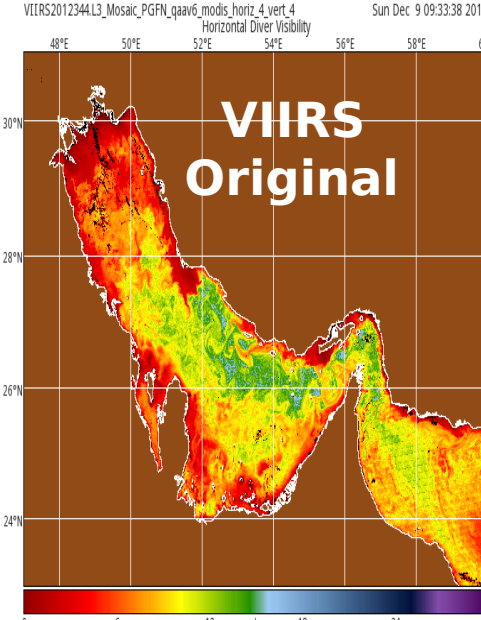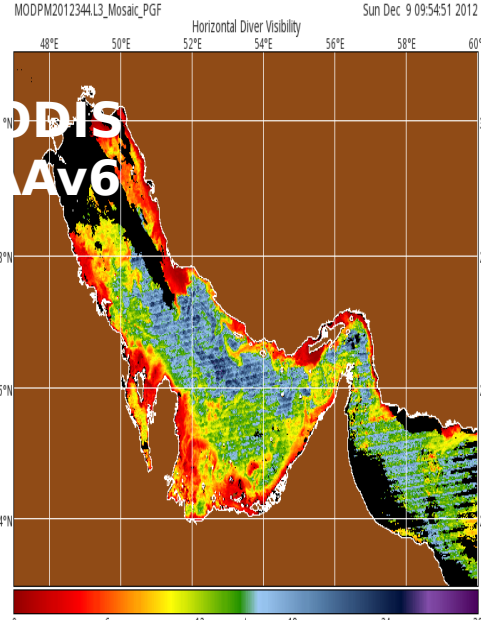$y = 0.95317728x$
$r^2 = 0.97717275$

Gains QAA
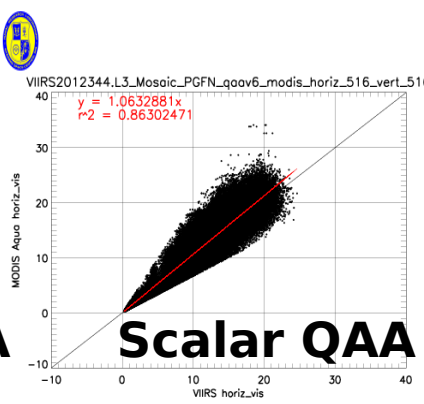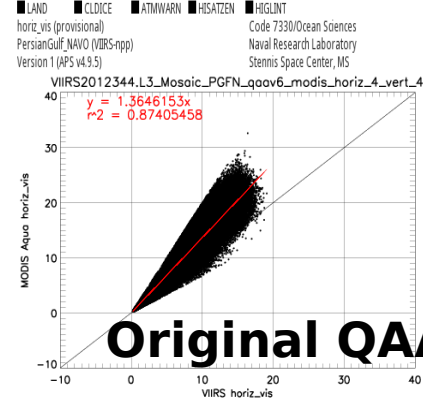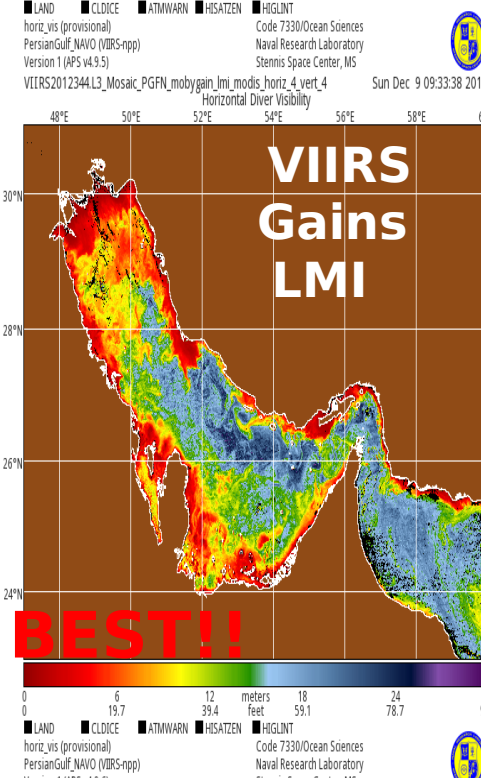
$y = 0.96852554x$
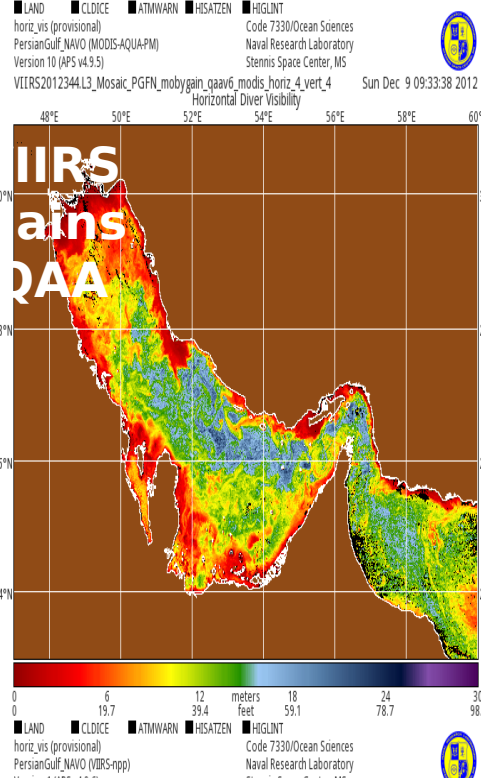$r^2 = 0.96013087$

Gains LMI

Korean Peninsula

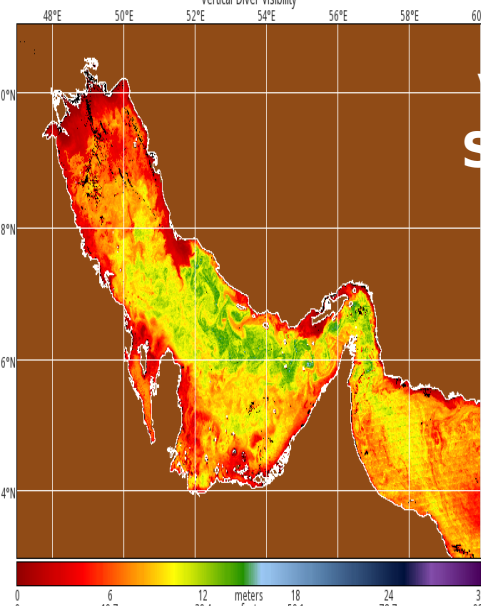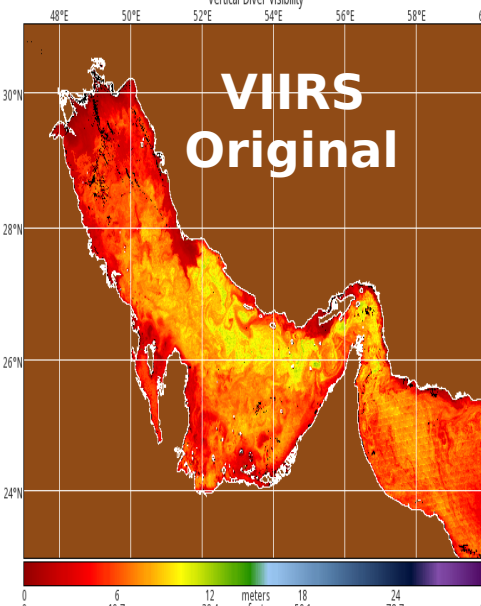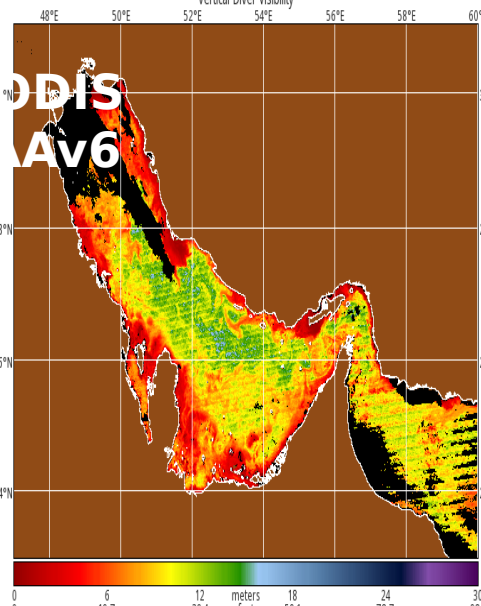Vertical Visibility

March 31, 2013
JDAY 090

AOPS v4.8
Evaluation

Persian Gulf

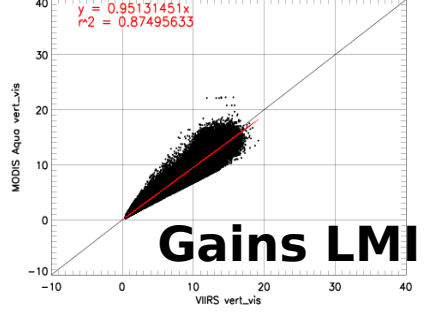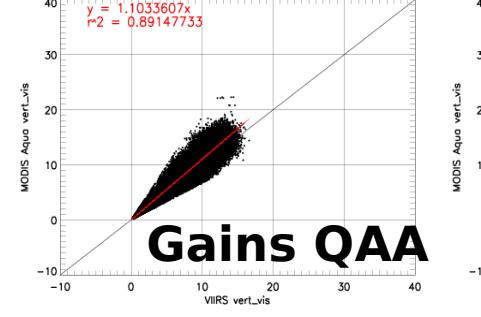Horizontal Visibility

Dec 9, 2012
JDAY 344

AOPS v4.8
Evaluation

Persian Gulf

Vertical Visibility

Dec 9, 2012 JDAY 344

AOPS v4.8 Evaluation

MODIS QAAv6

VIIRS Original

VIIRS Gains QAA

VIIRS Gains LMI

BEST!!

Original QAA
$y = 1.3295599x$
$r^2 = 0.85983045$

Scalar QAA
$y = 1.0348084x$
$r^2 = 0.85282623$

Gains QAA
$y = 1.1033607x$
$r^2 = 0.89147733$

Gains LMI
$y = 0.95131451x$
$r^2 = 0.87495633$

Persian Gulf

Horizontal Visibility

Dec 11, 2012 JDAY 346

AOPS v4.8 Evaluation

MODIS QAAv6

VIIRS Original

VIIRS Gains QAA

VIIRS Gains LMI

BEST!!

Original QAA

$y = 1.2892216x$
$r^2 = 0.73887930$

Scalar QAA

$y = 1.0277147x$
$r^2 = 0.65238868$
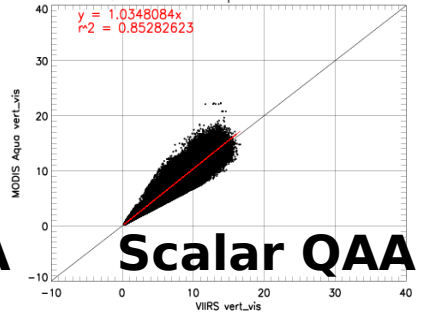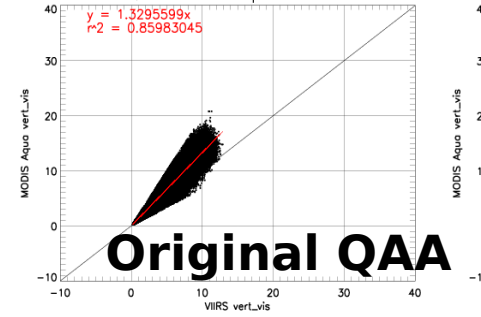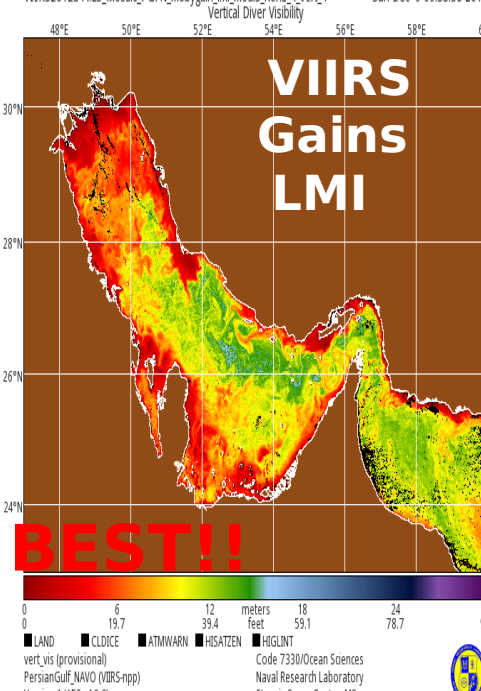
Gains QAA

$y = 1.0816883x$
$r^2 = 0.73832242$
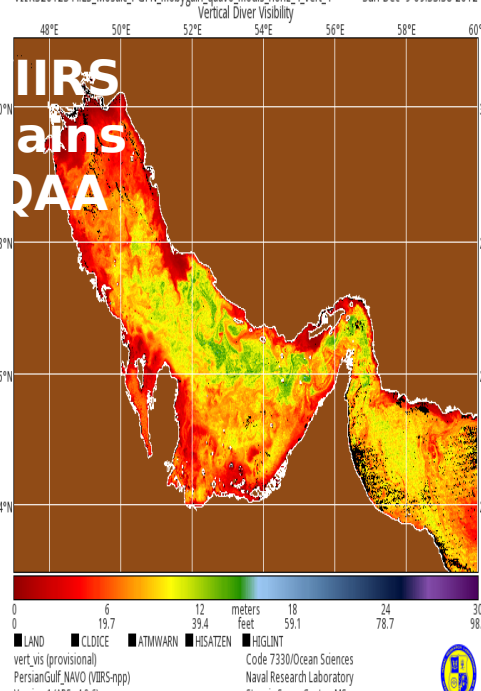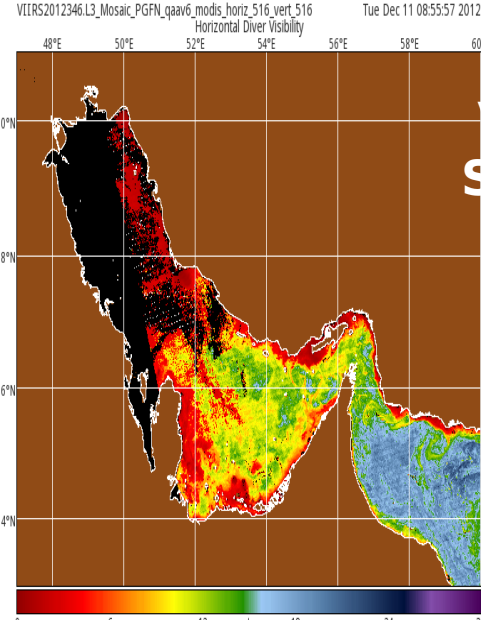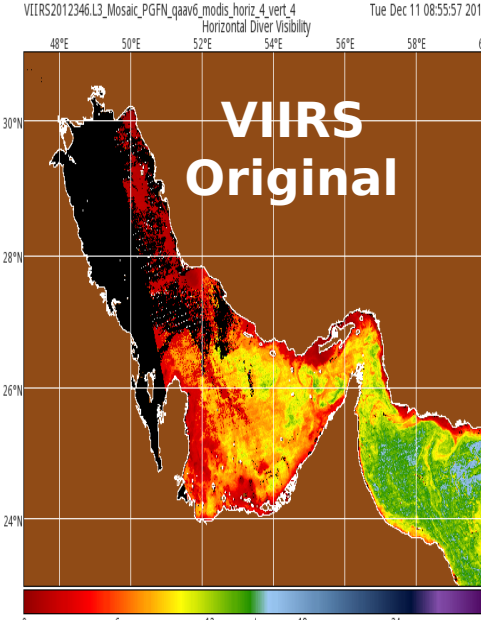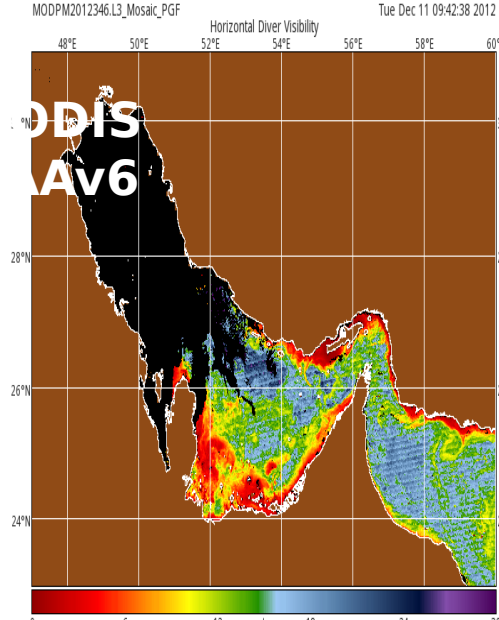
Gains LMI

$y = 0.97781012x$
$r^2 = 0.86850096$
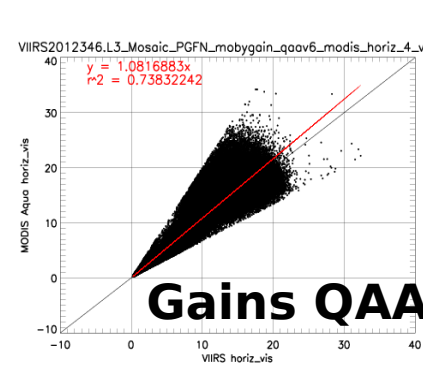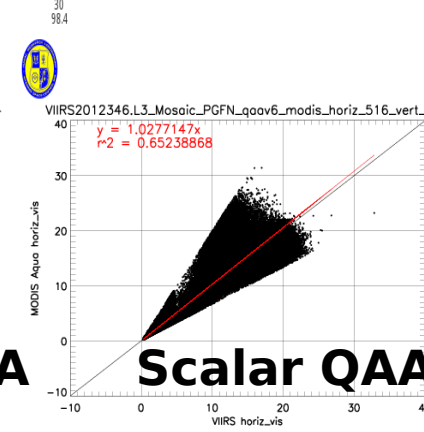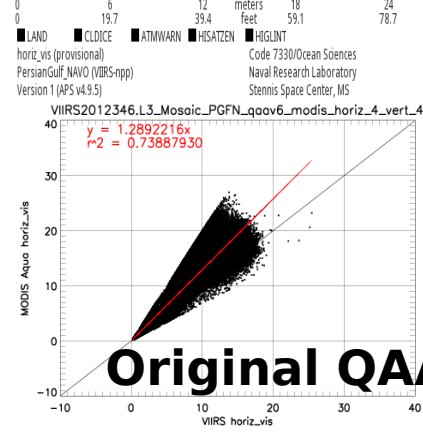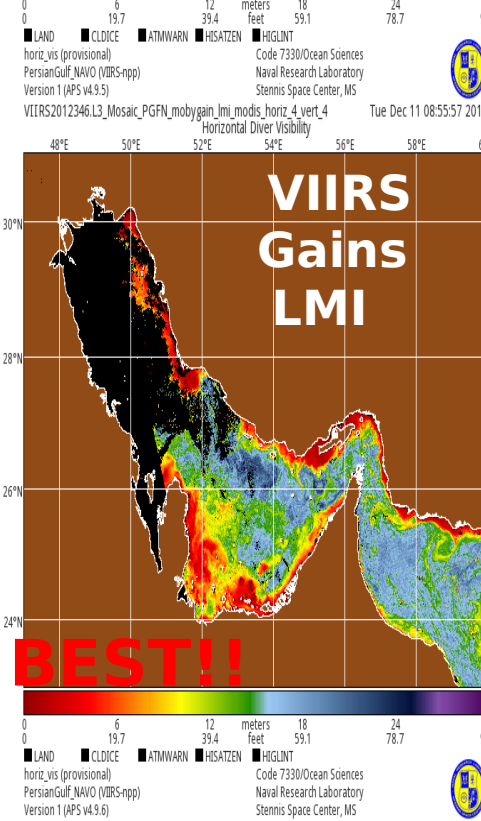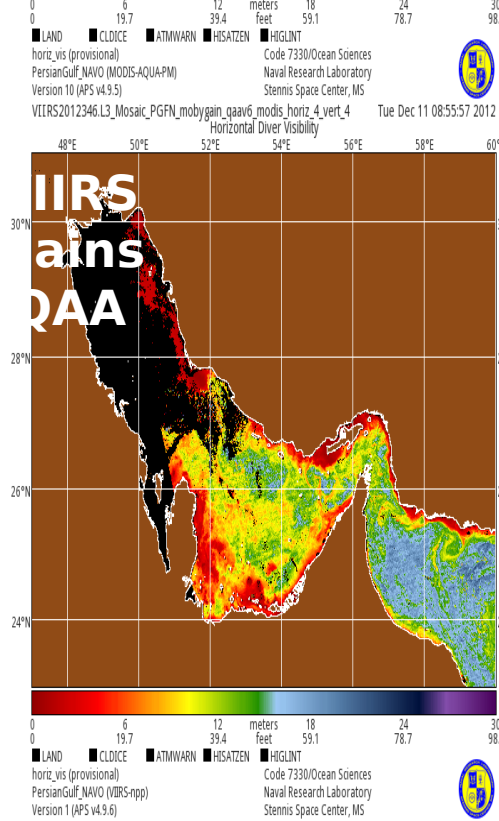
Persian Gulf

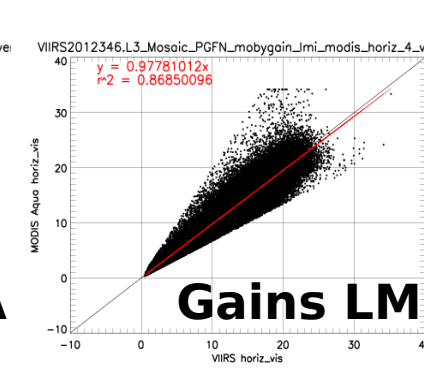Vertical Visibility

Dec 11, 2012
JDAY 346

AOPS v4.8
Evaluation
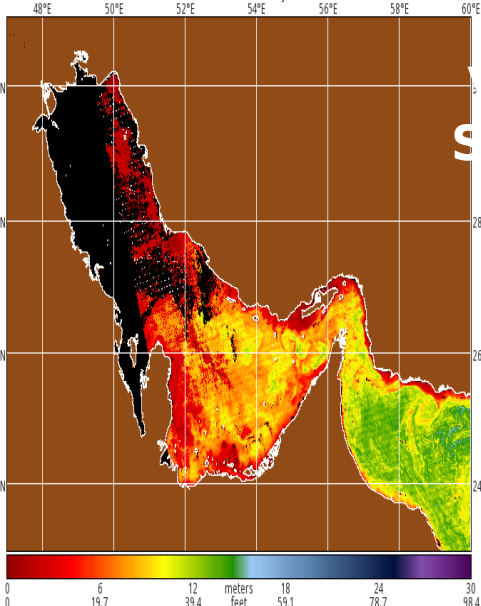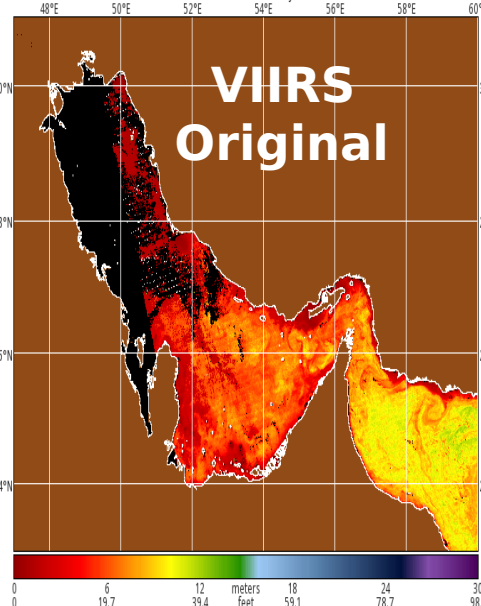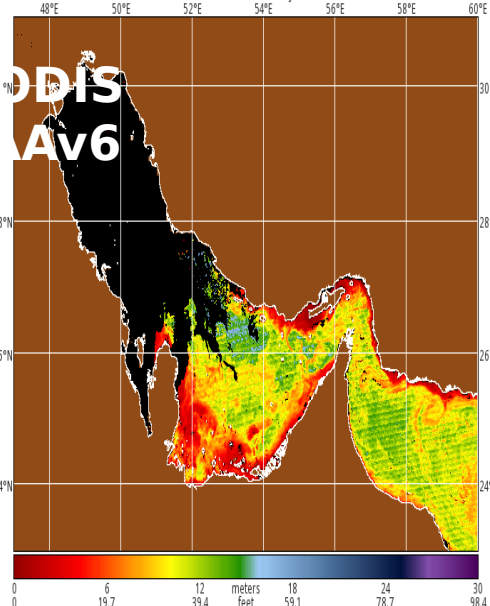
calibration

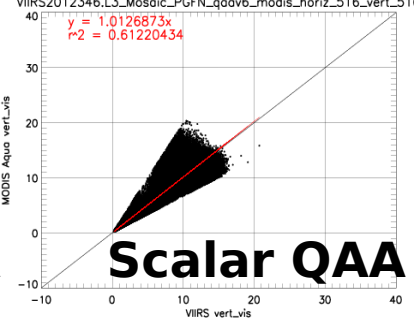calfile=
gain=0.9797,0.9854,0.9852,0.9797,0.9852,
1.0,1.0,1.0,1.0,1.0]
offset=[0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0]

# process control
# --------------
atmocor=1
proc_ocean=1
proc_land=1
proc_sst=0

# atmospheric correction and normalization
# --
aer_opt=-2
aer_wave_short=745
aer_wave_long=862
aer_rrs_short=-1.0
aer_rrs_long=-1.0
aer_swir_short=-1
aer_swir_long=-1
aer_iter_max=10
rhoamin=0.0002
mumm_alpha=1.945
mumm_gamma=1.00
mumm_epsilon=1.00
gas_opt=15
ray_opt=1
pol_opt=3
polfile=$APS_DATA/viirsn/cal/polcor_viirsn
brdf_opt=7
glint_opt=1
outband_opt=2
oxaband_opt=0
filter_opt=1
filter_file=$APS_DATA/viirsn/msl12_filter.dat

# to set horizontal/vertical visibility scale/offset
hvis_wave=551
#default 4.00
hvis_scale=5.16
hvis_offset=0.0

vvis_wave=551
#default 4.0
vvis_scale=5.16
vvis_offset=0.0